CE

ABACO MACHINES

OPERATION MANUAL

ABACO BISON LIFTER (ABL150)

ABACO MACHINES (USA)

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APPLICABLE MODEL of this BISON LIFTER:

ABL150

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General Safety Operation Manual Instructions Summary:

It is essential to review carefully and understand this Operation Manual before operating the equipment. Failing to read and understand this entire manual may cause injury or death to personnel, or damage to the equipment and the products that are being handled by this equipment if not properly followed.

This safety summary includes general safety precautions and instructions that must be understood and applied before, during, and after operations, as well as maintenance to ensure personnel safety and protection of this equipment. Prior to performing any task, the contents included in this manual should be reviewed and fully understood.

This manual explains some essential operating or maintenance procedures, practices, conditions, statements, etc. that if those are not strictly followed, it could result in injury, or death by chance in the worst case. And there might be some chances of damaging or destructing materials or machine component itself. In order to avoid or eradicate such worst coincidences and happenings, it is essential to read through this manual and follow accordingly. It is also important to comprehend the functions of this equipment thoroughly for your safe and efficient operations.

For any question, please contact your local dealer or distributor.

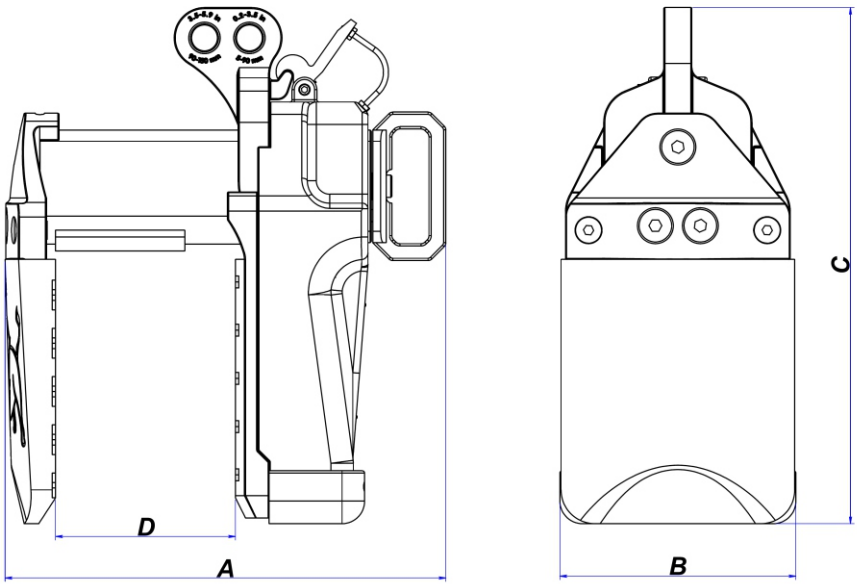
I. EQUIPMENT GENERAL INFORMATION:

- Bison Lifter (ABL150) is designed to clamp and move the stone slabs with wide range of different thicknesses from 5mm to 150mm.
- The 3960 lbs (1800kg) work load capacity helps expanding the working versatility of the lifter. It is suitable for both natural and artificial stones.
- The lifter is made out of aluminum and steel, so it is sturdy, durable and lightweight.
- The two clamp plates are covered by rubber pads to protect the stone slabs during operations and transportation.
- The lifter shall ensure the safety for users and increase the productivity.

II. TECHNICAL SPECIFICATIONS:

- ABL150 is mainly made of aluminum, so it is sturdy, lightweight, and durable in harsh environment and strong impact.
- The gripping force is evenly distributed to the surface of the stone slab by the clamping system installed on the lifting pin with 3 rollers.
- ABL150 shall be used by combining with a crane (or forklift truck) to clamp, lift, and transport stone slabs.
- The lifter shall be hooked to the specialized swivel shackle which makes a stone slab possible to rotate 360^{o} easily.

1. Dimensions:

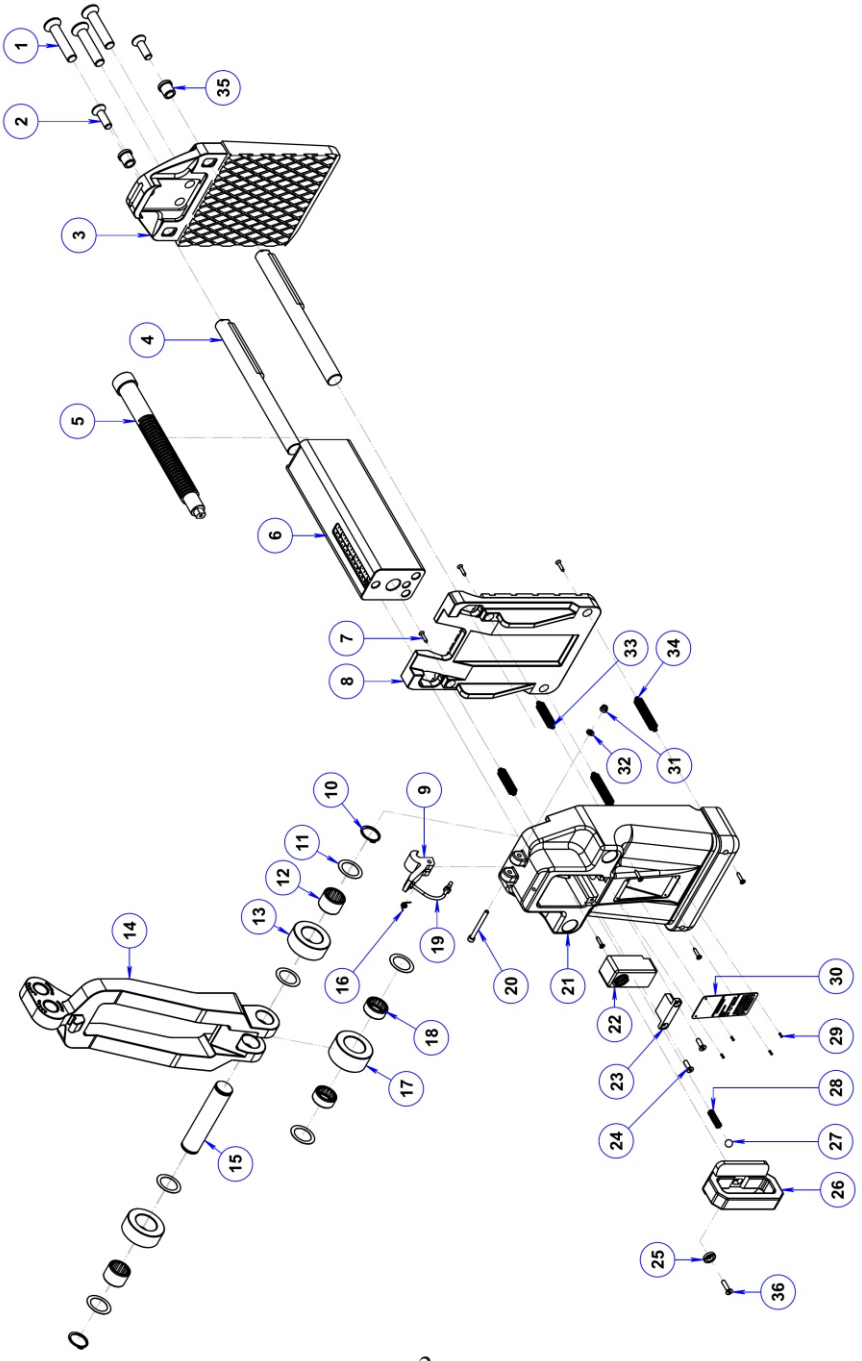


Length (A) inches (mm)	Width (B) inches (mm)	Height (C) inches (mm)	Clamp Gap Range (D) inches (mm)
15 7/16 (392)	8 1/4 (210)	18 1/8 (459)	1 3/8 ~ 6 5/16 (35 ~ 160)

Grip Range inches (mm)	W.L.L* lbs (kg)
3/16 ~ 5 7/8 (5 ~ 150)	3960 (1800)

**W.L.L: Work load limit*

2. Spare Part List:



SPARE PART LIST

PART NUMBER	DESCRIPTION	QTY.
ABL150-01	Hexagon socket countersunk head cap screw M16 x 80	3
ABL150-02	Hexagon socket countersunk head cap screw M12 x 40	2
ABL150-03	Clamp plate, fixed	1
ABL150-04	Shaft 1	2
ABL150-05	Threaded shaft	1
ABL150-06	Slide adjuster	1
ABL150-07	Screw M4 x 20	8
ABL150-08	Clamp plate, movable	1
ABL150-09	Locking latch	1
ABL150-10	Circlip Ø30	2
ABL150-11	Brass washer Ø30	6
ABL150-12	Bearing 1	2
ABL150-13	Slide roller	2
ABL150-14	Lifting pin	1
ABL150-15	Shaft 2	1
ABL150-16	Torsion spring	1
ABL150-17	Middle roller	1
ABL150-18	Bearing 2	2
ABL150-19	Release string	1
ABL150-20	Hexagon socket head cap screw M6 x 60	1
ABL150-21	Main body	1

PART NUMBER	DESCRIPTION	QTY.
ABL150-22	Rack adjuster	1
ABL150-23	Stopper pad	1
ABL150-24	Hexagon socket countersunk head cap screw M6 x 20	2
ABL150-25	Spacer	1
ABL150-26	Handle grip	1
ABL150-27	Ball	1
ABL150-28	Spring	1
ABL150-29	Aluminum rivets	4
ABL150-30	Label	1
ABL150-31	Lock nut M6	1
ABL150-32	Washer Ø6	1
ABL150-33	Top extention spring	2
ABL150-34	Bottom extention spring	2
ABL150-35	Bushing	2
ABL150-36	Hexagon socket countersunk head cap screw M6 x 25	1

III. SAFETY INSTRUCTIONS:

1. General Warnings, Cautions and Notes:

WARNING: Before using your Bison Lifter, please confirm the surfaces of the slab to be lifted are flat, smooth, and free from dust, oil, or any kind of such harmful substances which can cause slipping when lifting.

a. For the Bison Lifter:

Cautions:

- Carefully consider and follow all the safety regulations and applicable laws in your country for the operations.
- It is strongly recommended that only employees who are highly trained or experienced are allowed to operate this device. Safety rules and regulations must be strictly respected and followed.
- Lift up the slab slowly. If the slab is not balanced, lower the lifter, adjust the alignment and lift again.
- Before lifting any product, the Swivel Shackle should be carefully inspected for its wear, any damage, cotter/snap pins loosening / lost, or nut loosening. If the Shackle gets any damage, it should not be used until repaired or replaced.

Warnings:

- Inspect the lifter carefully and thoroughly. If the rubber pads of clamp plates are worn-out or damaged, do not use.
- This Bison Lifter is designed for lifting slabs ranging from 5mm to 150mm. Determine the weight of the slab to be lifted. Do not exceed the W.L.L. (Work Load Limit) shown on page 2.
- All employees must stand within safe area while slabs are being lifted or moved.
- Make sure to check the rubber pads are free from dirt, grease and other substances that may reduce their effectiveness. Clean the rubber pad surfaces by water. Then wait till dry and use the device after.

- Do not lift wet slabs. The grip depends on friction. Lifting wet slab may cause the rubber pads to lose their grips.
- Position the lifter at the center of the slab to be lifted, so that the load is balanced.
- Make sure that the slab is inserted to the full depth into the opening of the lifter (refer to Appendix at page 15).
- Light colored materials are not recommended to be clamped by black rubber clamp plate (due to mark the dirt on surfaces).

WARNINGS:

When the lifter clamps more than one slab at the same time:

- Check minutely that all the slab surfaces are dry and free from water, oil, dust or any foreign matters which may affect slippage in between the slabs.
- All the slabs are aligned at the gravity centers, where clamps of the lifter shall clamp for lifting. In this situation, the clamping force of the lifter shall be duly transferred to each slab evenly for uniformed clamping and be ready for lifting.
- The contact surfaces should not be polished, for polished surfaces cannot generate appropriate friction to hold slabs each other.
- When lifting multiple slabs, if the stone slabs may not balance or polished surface contact each other, the stone slabs should be neatly and tightly packed as a single package by clamping and to be ready for lifting.

b. General Safety Instructions:

Cautions:

- In order to protect from any accident, it is important to follow safety rules and regulations.
- Read the operation manual carefully before using.
- Make sure that the operation manual is always available beside the place where the lifter is used.

- Give permissions to operate the device only to persons who are well-trained and competent to work.

- Use appropriate PPE (Personal Protective Equipment) such as helmet, gloves, and safety boots, etc.

- Ensure and confirm each time before using the Bison Lifter has No Damage mechanically and functionally and is ready to be operated safely in the safe working conditions.
- Repairs and checks are to be made only by qualified persons.
- If any part worn-out, replace with a new one or contact the manufacturer.
- Before operating this device, check the swivel shackle that nuts are not loosened and cotter and snap pins are all in order. Be aware that Swivel Shackles can be worn-out time to time. Periodical lubrication can reduce wear. If worn-out, replace with a new one.
- Clean the device thoroughly after using.
- Store the lifter in a well-ventilated place, avoid places with high heat or humidity

Warnings:

- Never leave a lifted load unsupervised.

- Never allow yourself or anybody to go under the lifted slab.

- Be sure to check the lifter and its accessories duly and periodically, there should be no damage or loosening of fasteners or any irregular unfunctional sound, also before using re-confirm those points once again, then use the lifter for your safe operations.

2. Device Usage:

Preliminary Safety Checks:
"Competent Person" shall check the following before each use.

WARNING:

- The Bison Lifter is correctly installed/hung in the right manner described in this paragraph and to be operated in safe working conditions.
- The swivel shackle is correctly and securely installed and tightened accordingly.

Step 1: Set the swivel shackle hooking position.

To balance and easy to operate the device, lifting pin has two hooking positions as follows:

- Hook the Swivel Shackle at position 1 when the slab thickness is from 3⁄16" (5mm) to 3 9⁄16" (90mm) (Figure 1.1).

- Hook the Swivel Shackle at position 2 when the slab thickness is from 3 9⁄16" (90mm) to 5 7⁄8" (150mm) (Figure 1.2).

***Note**: The Bison Lifter can be rotated 360° by the swivel shackle installed.*

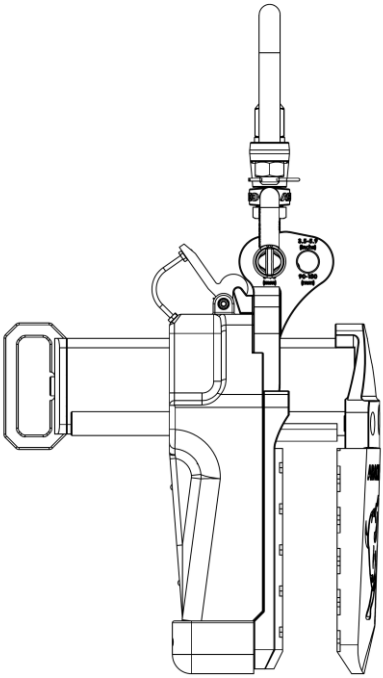


Figure 1.1

POSITION 1

Grip range:

3⁄16" (5mm) ~ 3 9⁄16" (90mm)

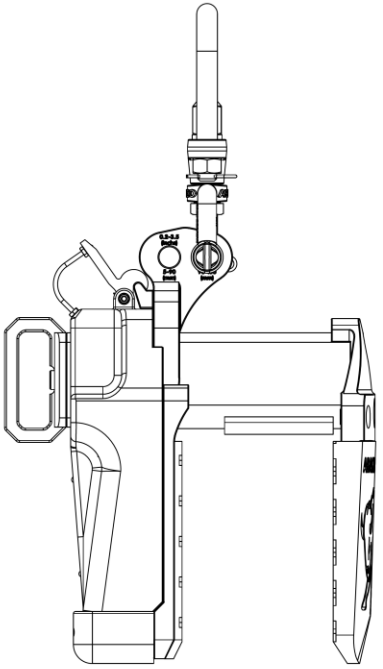


Figure 1.2

POSITION 2

Grip range:

3 9⁄16" (90mm) ~ 5 7⁄8" (150mm)

Step 2: Change the clamp gap to grip the slab.
- Rotate the handle grip to adjust the clamp gap to be suitable for the slab thickness (Figure 2.1).
- Rotate the handle grip counterclockwise to increase the clamp gap and clockwise to decrease the clamp gap.

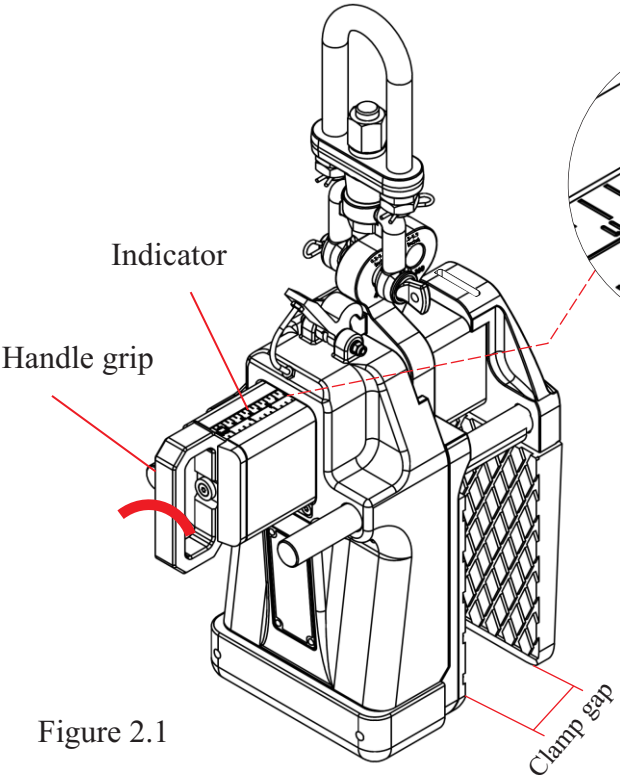


Figure 2.1

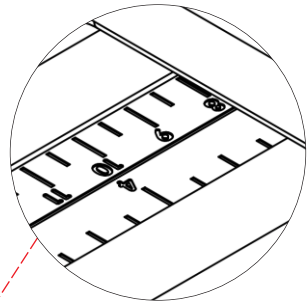


Figure 2.2

The clamp gap status is shown at the indicator located on the top of slide adjuster (Figure 2.1).

Example:

- In case of Figure 2.2, the indicator shows ‘8’ by the edge of the main body it means the clamp gap is 8cm, which is equal to 3 ⅛ ” (80mm).

Note:

The movable clamping plate can be moved within a safe limited distance from 0mm to 35mm, so that the Recommended Gap shall not be more than 35mm (Figure 2.3).

Calculation Formula:

Clamp gap < Slab thickness +1 ⅜" (35mm)

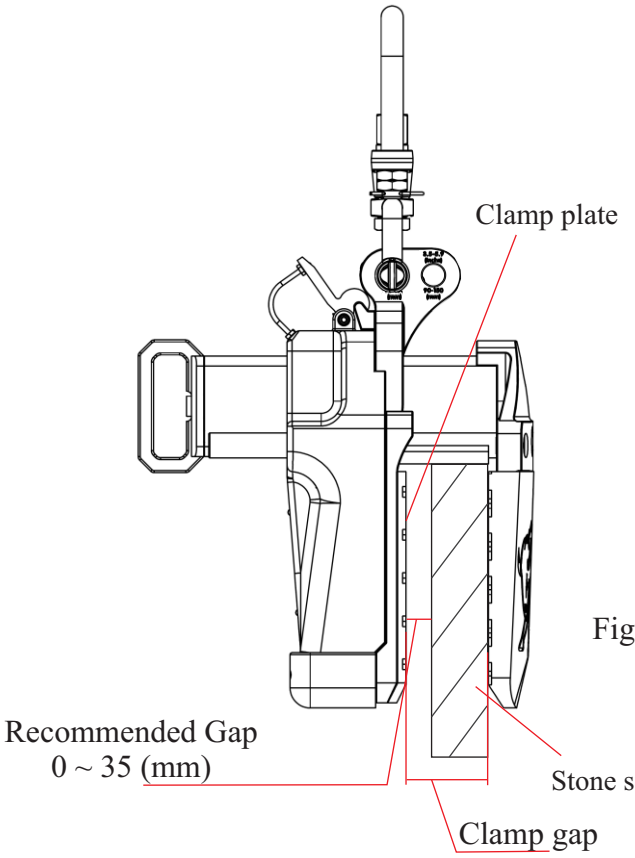


Figure 2.3

Example:

In case of slab thickness is 50 mm, the clamp gap shall not be more than 85 mm.

Step 3: Hook the Bison Lifter to a forklift boom (Figure 3.1).

Warning: Place the Bison Lifter at the safe place, then crane hook or Forklift boom has to approach the lifter for installation. Avoid lifting the Bison Lifter by hands in order to avoid dropping the lifter.

Note: *Do not stoop to pick up the device alone, the Bison Lifter must be picked up by 2 people.*

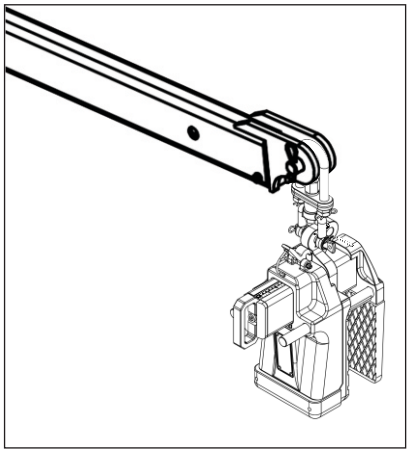


Figure 3.1

Step 4: Use slab wedges* to make a gap between the outer slab and the inner slab (Figure 4.1).

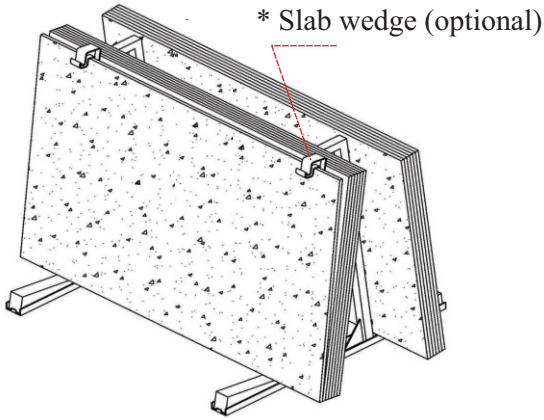


Figure 4.1

Step 5: Clamp the slab.
- Lowering the lifter to be perpendicular to the slab and place at the center of the slab (Figure 5.1).
Note: *Position the lifter securely at the center of the slab so that the load is balanced. Make sure that the slab is inserted in full depth to the opening of the lifter (Refer page 15).*

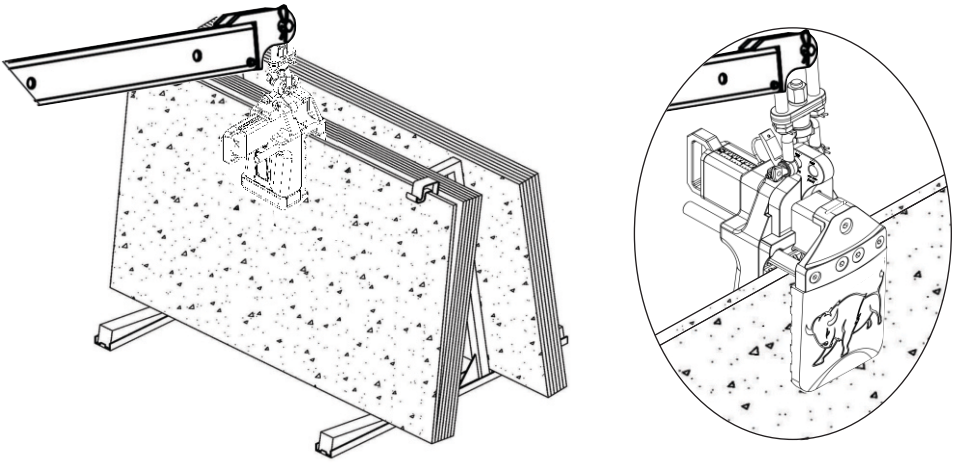


Figure 5.1

- Unlock the locking latch (pull down the wire) (Figure 5.2) then pull the lifting pin up to clamp the slab tightly (Figure 5.3).

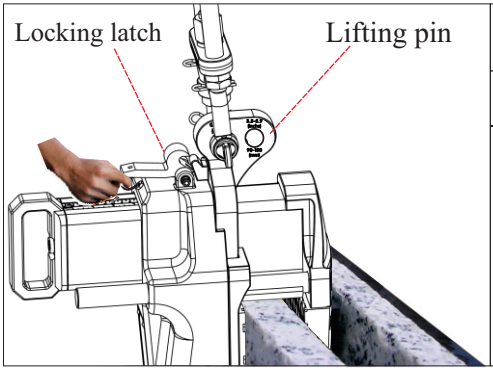


Figure 5.2

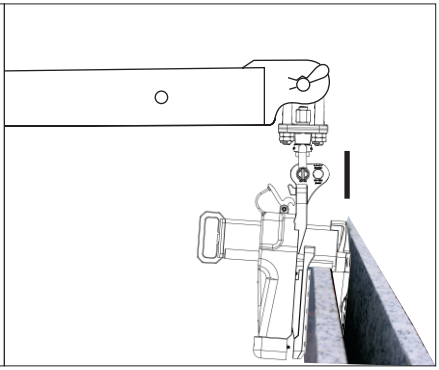


Figure 5.3

Step 6: Move the stone slab to the desired position (Figure 6.1).
Warning: *All the people who are not obligated must stand within safety area while slab is being lifted or moved. Do not allow yourself or anybody to go under the lifted slab.*

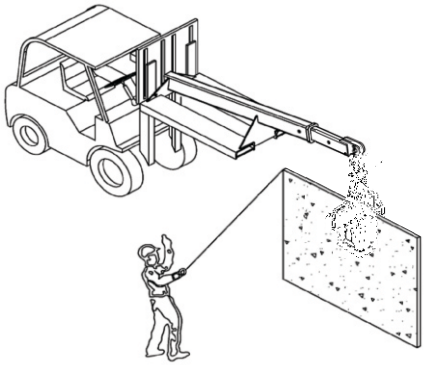


Figure 6.1

Move the stone slab to the desired position. Lower the lifter slowly until the locking latch catches the lifting pin to keep the clamp plates open to release the slab. Then move the lifter away from the slab (Figure 6.2).
Cautions:
- Before lowering the slab, make sure there are no obstacles to interfere when lowering the slab to the stand or rack.

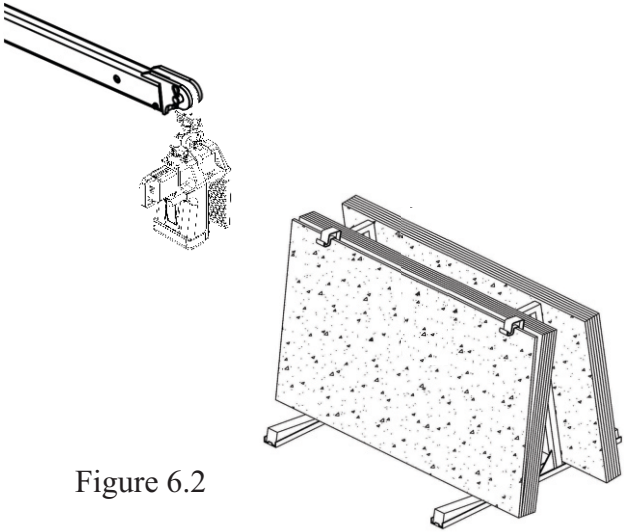


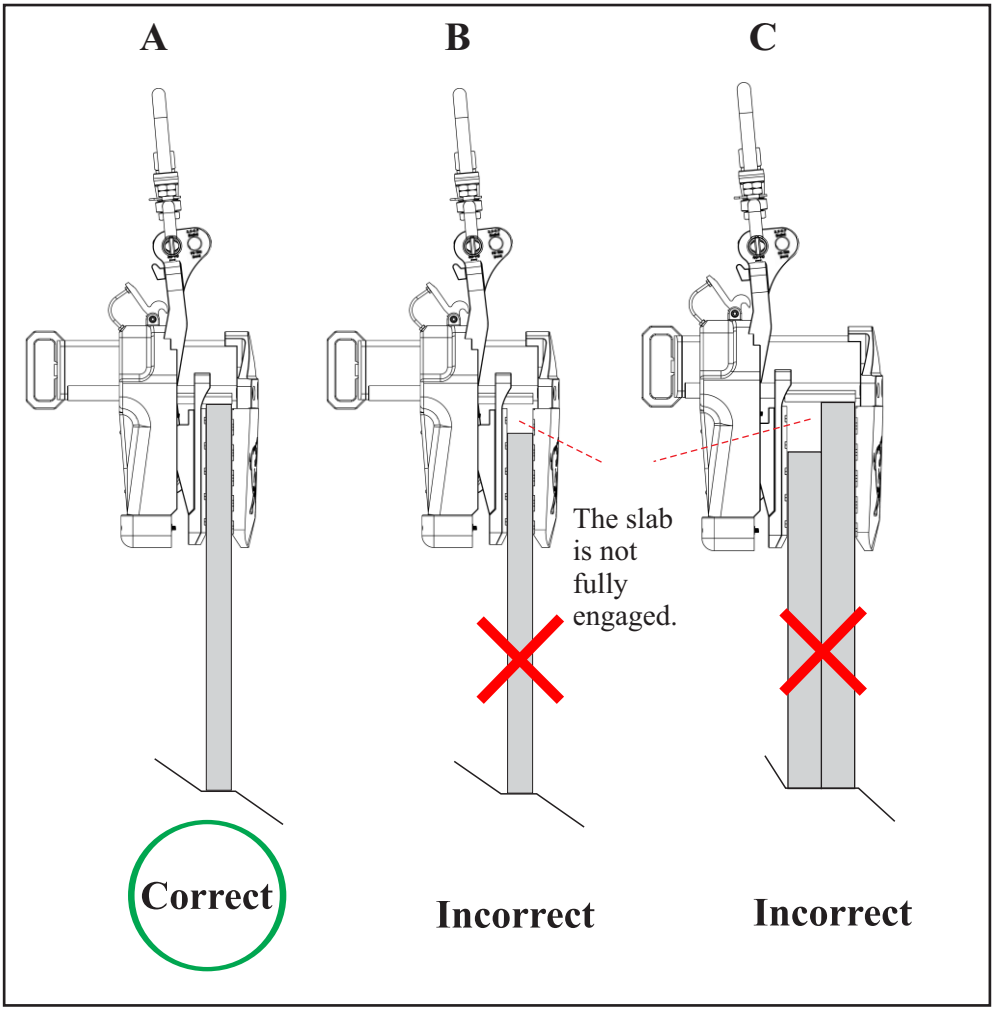
Figure 6.2

IV. APPENDIX:

1. Correct and incorrect methods of clamping slab:

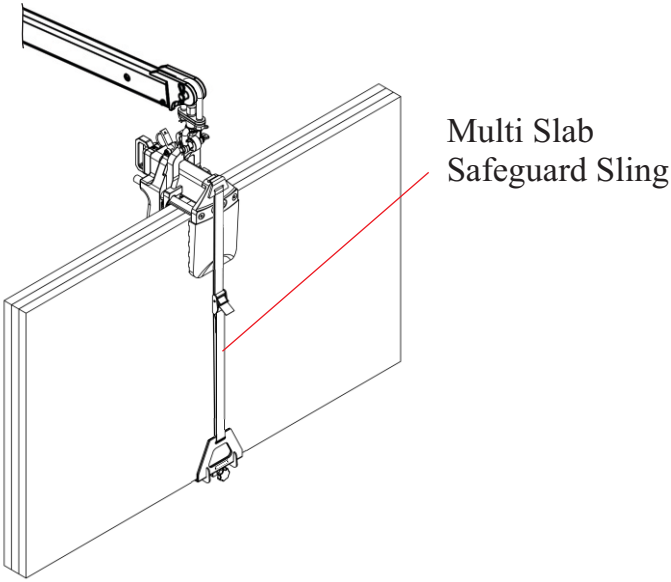
WARNING

- Do not exceed W.L.L (Work Load Limit, page 2).
- Slab thickness must be within G.R. (Grip Range, page 2).
- Inspect and replace the Swivel Shackle as needed due to ware.



2. Instructions for clamping multiple slabs:

- First, lift the clamped slabs only a half inch or equivalent gap.
- Check the whole balance of the aggregated slabs. If the aggregate is not balanced, change and adjust the alignment.
- Then check and confirm that there is no slippage on any slab.
- Lift a little more and make a little sudden down to confirm that the device is in good operation. It is possible to change the height happens during transportation.
- Minutely check on each component of the slab for any slippage.
- If detect any problem, find the cause and then try again
- If failed to find the cause, reduce the number of slabs, or use Multi Slab Safeguard Sling.



Using the Multi Slab Safeguard Sling to clamp multiple slabs at the same time (Figure 7.1).

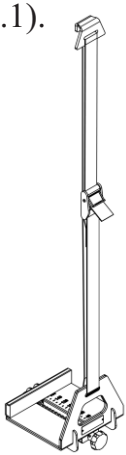


Figure 7.1

- After the lifter lift the stone slabs out of the frame (Figure 7.2), install the Multi Slab Safeguard Sling to the lifter (Figure 7.3).
Note: *Pull down the strap and rotate the turn-knob clockwise to fix the ratchet strap clamping tightly to the slabs.*

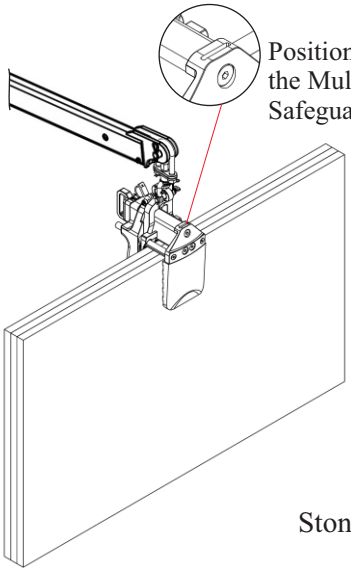


Figure 7.2

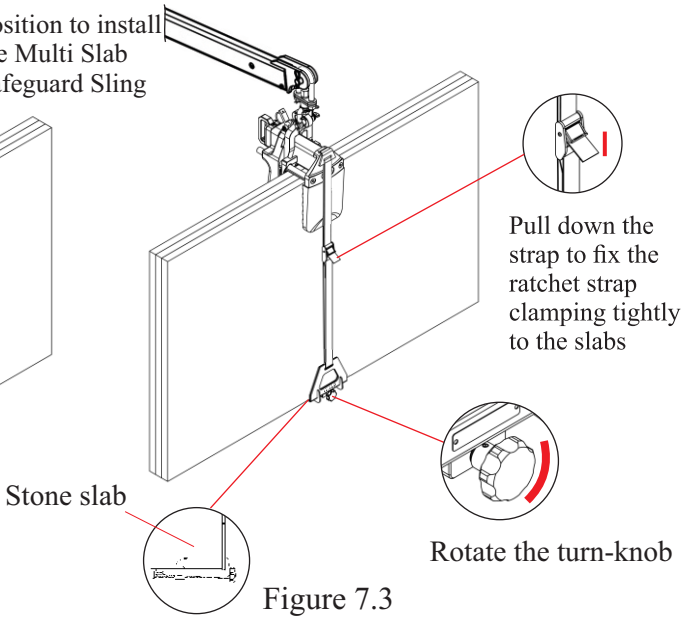
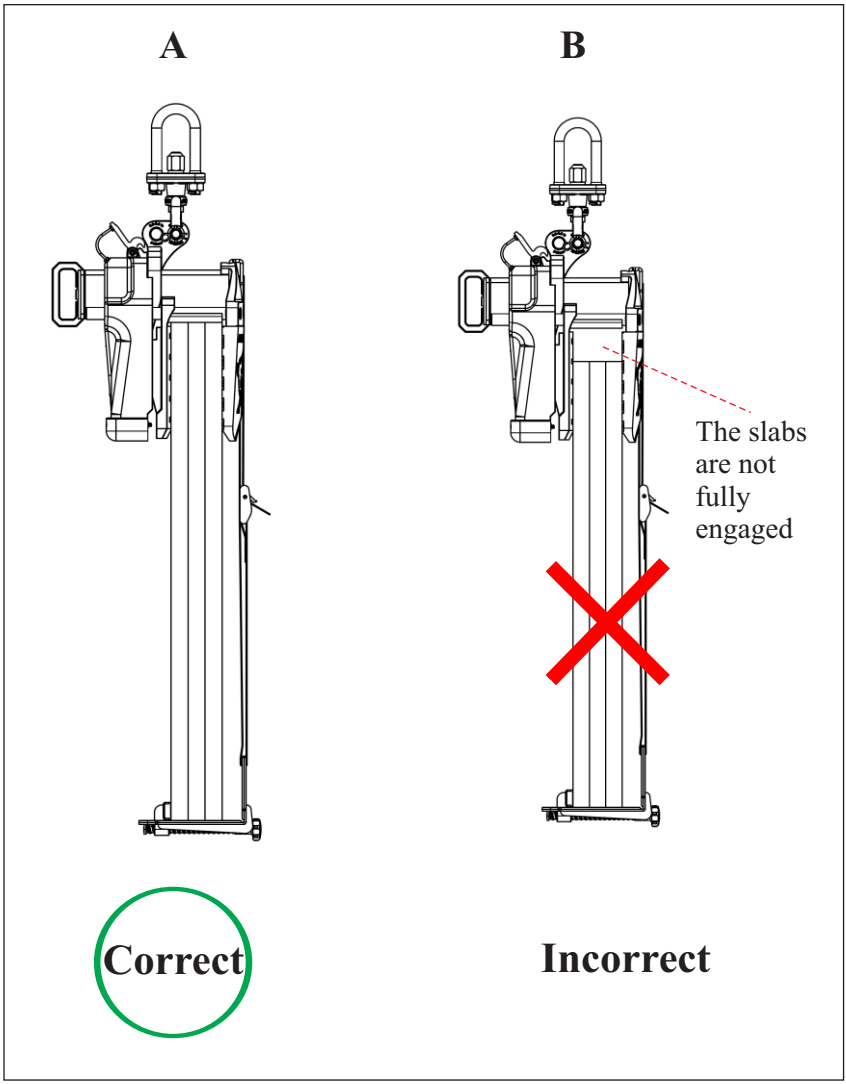
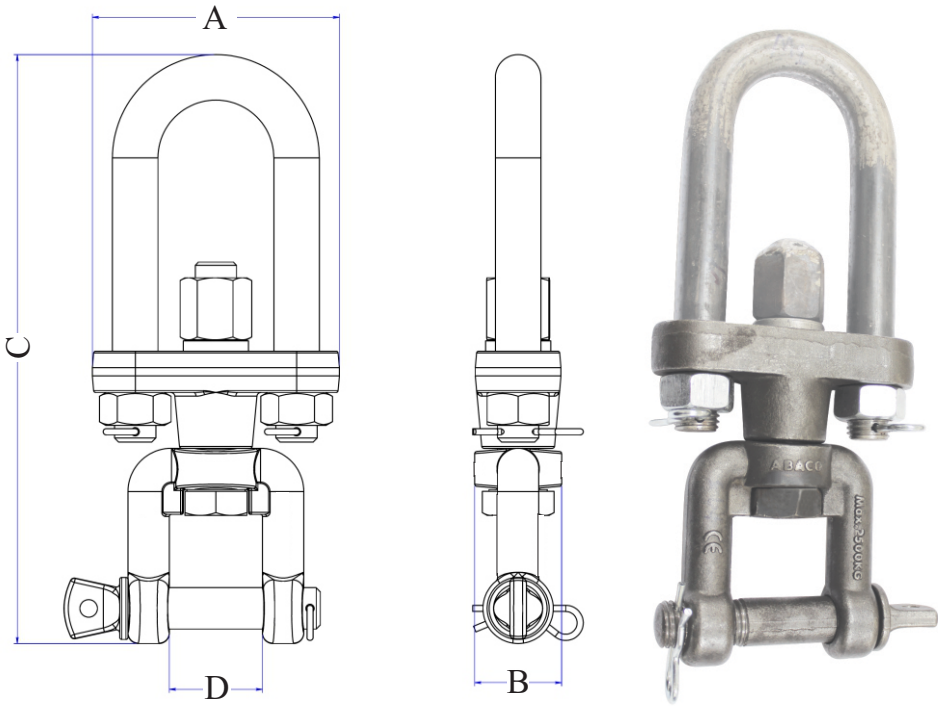


Figure 7.3

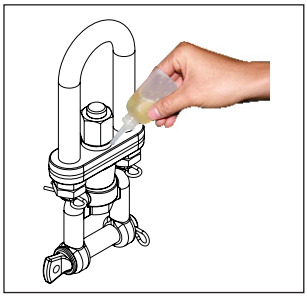
Correct and incorrect methods of clamping multiple slabs:



3. Swivel shackle:



Length (A) inch (mm)	Width (B) inch (mm)	Height (C) inch (mm)	Grip Range (D) inch (mm)
5 ¼ (133)	1 ⅝ (42)	11 ¼ (286)	1 ¾ (45)



- Step1: Check the wear of friction part.

- Step 2: Lubricate Oil into friction surface once a week.

Note: *Lubricator once a week.*
Lubricator all around the lining.

V. TECHNICAL PROBLEMS & SOLUTIONS:

Technical problems	Causes	Solutions
It is difficult to change the grip gap.	Dust and/or rust or threaded shaft is damaged.	Clean the device, lubricate oil or replace with a new threaded shaft.
The lifting pin does not return to the original position.	Lifting pin is stuck or the spring gets distorted.	Clean the shafts, bearings or replace with a new spring.

VI. INSPECTION & MAINTENANCE:

- Schedule check the equipment regularly, especially the rubber pads to ensure is in good operating conditions.
- Always keep necessary spare parts on hand for immediate maintenance or repair purposes before operating.
- Regularly check the tightening conditions of all the bolts and nuts.
- Always keep the lifter clean and away from grease or other substances as they may reduce the effectiveness of the rubber pads and cause them lose their grip.
- Store this equipment in a well-ventilated place (dry and cool), avoid places with high heat and/or humidity.

VII. WARRANTY POLICY:

At the time of delivery, it is necessary to inspect the **Bison Lifter (ABL150)** to make sure that it has not been damaged during shipment. The product at the time of dispatch is warranted to be free of defects in material or workmanship.

Claims for errors, shortages, defects, or nonconformities ascertainable upon inspection must be made in writing within eight business days from the date of product delivery. Claims not made as provided above and within the applicable time period will be barred and no other claims will be considered.

We provide a one (1) year warranty on the **Bison Lifter (ABL150)** from the date of purchase.

During warranty period, we will provide the replacement parts at no charge (*Please note:* shipping and handling fees may apply).

Warranty coverage is void if:

- The operator failed to comply with the instructions in the manual.
- The specifications are not followed.
- Damage is due to inadequate maintenance and inspections.
- Damage is due to improper storage and/or usage.
- Modification and repairs made to the equipment were performed by the user/operator without the manufacture's knowledge and agreement.
- Aftermarket or none genuine spare parts were used for repair installation.
- Modification and repair installations were conducted by uncertified individual.

WARRANTY CERTIFICATE

You are kindly requested to read the following carefully.

PERIOD

The warranty starts from the date of purchase (date on distributors invoice).

Warranty is valid for a period of twelve (12) months.

WARRANTY

This warranty is limited only to provide replacements of the parts recognized by the Company as defective (excluding worn-outs and consumables.)

The Company is not responsible for any misuse or abuse of the product after purchase and/or caused by negligence from the content of this manual.

In an event of equipment failure to operate the machine and/or requiring technical support, operator/user is requested to contact with our Customer Support Department. Our member will inform you (operator/user) of the appropriate procedures accordingly and how to file warranty claim and advise you to your nearest approved service center.

EXCLUSIONS

Warranty does not apply for damages or failures caused by:

Misuses, errors in transportation, incorrect handling or failing to maintain the equipment appropriately.

Use of non-genuine parts/accessories, or of incorrect specifications.

THIS MANUAL SHALL BE REVISED WITHOUT PRIOR NOTICE
FOR IMPROVEMENT PURPOSES